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To: DES SBCC
Subject: 2021 WSEC-R Air Leakage Proposal
Attachments: [Public_Testimony_Sign_Up_Form_5.pdf](#)

External Email

Chair Doan and Members of the State Building Code Council:

I am a certified energy auditor and HERS Rater based in Bellingham under the providership of the WSU Energy Program. We support builders in the Northwest part of the state with WSEC-R compliance including by conducting required air leakage testing under R402.4.1.2. I noticed several proposed changes for the 2021 WSEC-R air leakage testing procedures and allowed air leakage rates and wish to provide comments on several aspects of the proposals:

- **Air Leakage Rate:** The current 2018 WSEC-R maximum air leakage rate is 5 ACH50 whereas the model national code (2021 IECC) has a maximum air leakage rate of 3 ACH50. There was a 2021 WSEC-R proposal to reduce the maximum air leakage rate for home's following the prescriptive pathway to 3 ACH50. I support the more stringent 3 ACH50 standard as prescribed by the national code. As building science has progressed, we have discovered that sealing the building envelope is critical to good thermal performance, reduced energy usage, and reducing moisture/condensation risks. The technology exists to feasibly reduce air leakage to 3 ACH50 or below and builders have become more aware of the need to have continuous air barriers and test the building prior to applying finishes.
- **Building Volume:** The current 2018 WSEC-R assigns a simple formula of calculating the building volume by multiplying the conditioned floor area x 8.5. One of the proposals removes this volume criteria, and instead volume would be calculated based on the standard used for testing (E.g. RESNET/ICC 380). I support removing this simple volume formula and basing the building volume on the actual volume of the building referred to as the "Infiltration Volume" per the RESNET standard. There are several reasons why the actual building volume should be used. First, this volume determination is inexact – the WSEC definition of conditioned floor area doesn't say whether to include exterior walls, conditioned attics or crawlspaces, and an 8.5 foot ceiling height is very arbitrary with some buildings having shorter or taller ceilings. Second, many buildings feature taller ceilings and these buildings are unfairly penalized by having to reduce air leakage further to make up for the fact that their volume is reduced by the 8.5' formula. I have tested buildings where tall ceilings have led to a 1-2 ACH50 higher score than if they had used the RESNET/ICC volume. Third, this formula is not practical – as a tester I may need to repeat a test multiple times using different volumes – one for WSEC compliance, and another for above-code programs (e.g. Energy Star) or to provide an apples-to-apples comparison between different houses a builder has built.

- **Testing Agency Certification:** The current 2018 WSEC-R provides AHJs with the option of requiring an approved third party provide testing but does not require this or list qualifications of the testing agency. There was a proposal for R-2 occupancies to require that the “individual performing the air leakage test shall be trained and certified by a certification body that is, at the time of permit application, and ISO 17024 accredited certification body including, but not limited to, the Air Barrier Association of America”. I support third party testing as there is a conflict of interest for a builder or subcontractor to test their own work and there is potential for cheating on the test. Air leakage testing is technical in nature and the person performing the training should have training and be certified. For single family dwellings and townhouses, consider requiring the testing be done by a third-party certified HERS rater or BPI professional. These two certifications are the most widely recognized and used in our industry.

Thank you for your consideration of these comments. I would like to sign up to provide public testimony at Friday’s hearing.

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